State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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April 9, 1997

TO: Board of Oil, Gas and Mining

THRU: Mary Ann Wright, Associate Director

THRU: D. Wayne Hedberg, Permit Supervisor

FROM: Tom Munson, Senior Reclamation Specialist

RE: Request for Board Approval, Amount and Form of Reclamation Surety, Centurion Mines Corporation, OK Mine, M/001/039, Beaver County, Utah

The Division seeks Board approvals of the amount and form of reclamation surety to be provided by Centurion Mines Corporation for the OK Mine, located in Beaver County, Utah. The form of surety will be a Certificate of Deposit, with First Security Bank of Utah for the amount of $550,000. This amount is the reclamation surety calculated for the disturbance associated with Phase I.

Centurion Mines Corporation plans to initiate their large mining operation by May 2, 1997. At that time the Reclamation Surety will be in place for Phase I. The mining operation will be a phased operation and the subsequent phases, Phase II and III, will be bonded separately and approved at such time as they chose to initiate those phases.

Attached for your review are copies of the following documents:

1. Summary checklist
2. Executive Summary
3. Location Map
4. Reclamation surety estimate
5. Reclamation Contract (Form MR-RC)
6. Certificate of Deposit - (Attachment B)

Thank you for your time and consideration of this request.

Attachments
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DOGM MINERALS PROGRAM

Checklist for Board Approval
of
FORM AND AMOUNT OF SURETY

Prepared April 9, 1997

Company Name Centurion Mines Corporation
Mine Name OK Mine
File No. M/001/039

Items	Provided Yes	No	Remarks
Executive Summary	X		
Location Map	X		
Reclamation Bond Estimate	X		
Signed Reclamation Contract	X		
Signed Power of Attorney/ Affidavit of Qualification		X	N/A
Bond/Reclamation Surety	X		Executed Certificate of Deposit to be in place prior to operating beyond the current 5 acre small mine notice (@May 2, 1997).
Surety Sign Off (Other State/Federal Agencies)		X	N/A
RDCC contacted	X		

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EXECUTIVE SUMMARY

Prepared January 8, 1997
Updated April 9, 1997

Mine Name: OK Mine
Operator: Centurion Mines Corporation
331 South Rio Grande Street - Suite 201
Salt Lake City, Utah 84110

Telephone: (801) 534-1120
Contact Person: Rick Havenstrite

I.D. No.: M/001/039
County: Beaver
New/Existing: New
Mineral Ownership: Fee
Surface Ownership: Fee
Lease No.(s): N/A
Permit Term: Life of Mine

Life of Mine: 10 years +

Legal Description: South ½ of Section 6 and North ½ of Section 7, Township 27 South, Range 11 West, SLB&M, Beaver County, Utah

Mineral(s) to be Mined: Copper produced from the following oxide copper minerals - azurite, malachite and tenorite

Acres to be Disturbed: 275 acres for Phases I, II & III, (Phase I = 128 acres)

Present Land Use: Hunting, grazing, rock collecting, off-road vehicles

Postmining Land Use: Grazing and recreation

Variances from Reclamation Standards (Rule R647) Granted: **R647-4-111-7-highwalls; 111.9 - dams and impoundments; 111-12-topsoil redistribution (pit walls); and 111-13- Revegetation (pit walls).**
(1) **pit highwalls** will be allowed to remain at angles steeper than 45 degrees. Backfilling or otherwise flattening the pit walls at the end of mining would have the effect of making the remaining ore uneconomic for future mining. The current pit walls are stable at approximately 60 degrees and have been for 25 years.
2) **dams & impoundments:** A small impoundment of less than several hundred square feet will be left based on the following facts. It will have a reduced drainage area following reclamation. The embankment will be stabilized with coarse rock to prevent failure. It will also provide some riparian habitat and limited water for wildlife following reclamation. It is not considered large enough to constitute a hazard and will remain an overall benefit to an arid environment.
3) **topsoil redistribution and revegetation:** It is not practical to regrade or revegetate pit walls. The pit walls will be left at approximately 55 degrees. The walls will be solid rock. Based on the condition of the current pit, it is highly unlikely that vegetation can be established on these walls.

Soils and Geology

Soil Description: Soils are all derived from decomposed granite with varied amounts of silt, sand and rocks. Soil depths in the mine and dump areas are typically less than 5 feet and are underlain by bedrock. In the area of the pad, soils contain a higher degree of silt and sand and the depth to bedrock is 5 to 20 feet typically.

pH: 8.1 - 8.3

Special Handling Problems: None

Geology Description: The project is located in low foothills and the top of a gently southernly sloping alluvial fan. The entire area is underlain by a massive igneous (granite) intrusion. A nearly vertical fault zone cut the granitic formation and this fault was later mineralized with copper minerals such as azurite, malachite, and tenorite. The relatively homogenous granitic rock formation extends at least 3 miles in every direction.

Hydrology

Ground Water Description: There have been hundreds of holes drilled in the vicinity of the project. The holes drilled in the vicinity of the pit, 400 feet below the bottom of the pit, were dry. Other holes drilled within the vicinity of the project encountered minor amounts of brackish water. Only several holes encountered any significant water and these holes were located next to one of the two main drainages coming from the hills above the project. Hole MD-1 was drilled in the vicinity of the pad to a depth of 705 feet and encountered negligible water. Hole MW-1, southwest side of the pad, encountered good water and is down gradient of the pad and is to remain a monitoring well.

Surface Water Description: There are no streams or springs within 5 miles of the operation. A major wash exists to the west of the project which collects surface runoff from a large area to the west and north of the project. This wash is ephemeral and will not be disturbed. It and only experiences flows during extremely intense storms.

Water Monitoring Plan: Groundwater will be monitored for 8 consecutive months prior to the commencement of operation and semi-annually thereafter. Two current groundwater monitoring wells have been located immediately down gradient (south) of the proposed heap leach pad and processing ponds area.

Ecology

Vegetation Type(s); Dominant Species: Big sagebrush, rabbitbrush, squirreltail grass, indian ricegrass

Percent Surrounding Vegetative Cover: 21%

Wildlife Concerns: Only concern are the antelope. Centurion intends to construct a six foot high chain link fence around the heap leach pad and processing plant area. In addition, a water trough will be placed and maintained outside the fenced area.

Surface Facilities: Heap leach pad, SX/EW (solvent extraction/electrowinning) process plant, office building, mine shop.

Mining and Reclamation Plan Summary:

During Operations: The mining operation will consist of three phases as follows: *Phase I* - construction of a fully lined (57 acre) heap leach pad, a (2 acre) solvent extraction/electro-winning(SX/EW) processing plant, and the re-mining and leaching of 2 million tons of (previously mined) stockpiled copper ore surrounding the old O.K. Pit. The SX/EW process produces a copper sulfate electrolyte which is pumped into

electro-winning cells where 99.998% pure copper is electroplated onto stainless steel sheets. The copper ore is leached with a dilute sulfuric acid solution. *Phase II* - strip mining new ore by widening and deepening the existing O.K. pit. Overburden to ore stripping ratio is approximately 1:1. Run of mine ore will be stacked on the heap and leached. *Phase III* - development of the new eastern extension of the ore zone (Mary I pit). This pit will merge into the eastern side of the O.K. pit. All environmental permits will be in place prior to initiation of operations. Reclamation bonding of this operation will occur in phases. Approval of each phase will remain contingent on adequate permitting and bonding for each phase. All process water will be contained in a fully engineered facility and all environmental controls will be in place prior to initiating leaching operations. Approximately 10 million tons of ore and 10 million tons of waste material will be produced. Variances were granted to topsoiling and reseeding requirements for inaccessible and unsafe pit benches and highwalls. Variances were granted to allow pit highwalls to remain at angles steeper than 45 degrees, and to allow the pits to impound water following mining.

After Operations: The heap will be rinsed with fresh water rinsate to comply with final effluent standards set by the State Division of Water Quality. Solution in ponds will be allowed to evaporate. Remaining sludge will be tested for metals and subjected to meteoric mobility analyses. All remaining hazardous material from these ponds will be disposed of at an appropriately licensed facility. Pond liners will be folded or dozed into the pond bottoms and covered with 5-10 feet of fill. All dump slopes and heap leach pad slopes will be graded to 3H:1V, and covered with one foot of topsoil and re-vegetated. Monitoring wells will be plugged according to state requirements. A water well will remain to provide a long-term source of water for local wildlife. The processing facilities will be demolished and removed or buried onsite. Exposed concrete foundations will be broken up and buried. The process facilities area will be graded to blend with the adjacent topography and re-vegetated. All non-hazardous or non-toxic materials will be buried. Any remaining hazardous or toxic materials will be disposed of according to federal and state regulations. Approximately one foot of topsoil will be replaced on all disturbed, non-pit areas that originally had topsoil. These areas will be roughened, terraced and reseeded with the approved seedmix to allow postmining use by livestock and wildlife.

Surety

Amount: $550,000
Form: Certificate of Deposit - First Security Bank of Utah
Renewable Term: 5 years (2002)

jb
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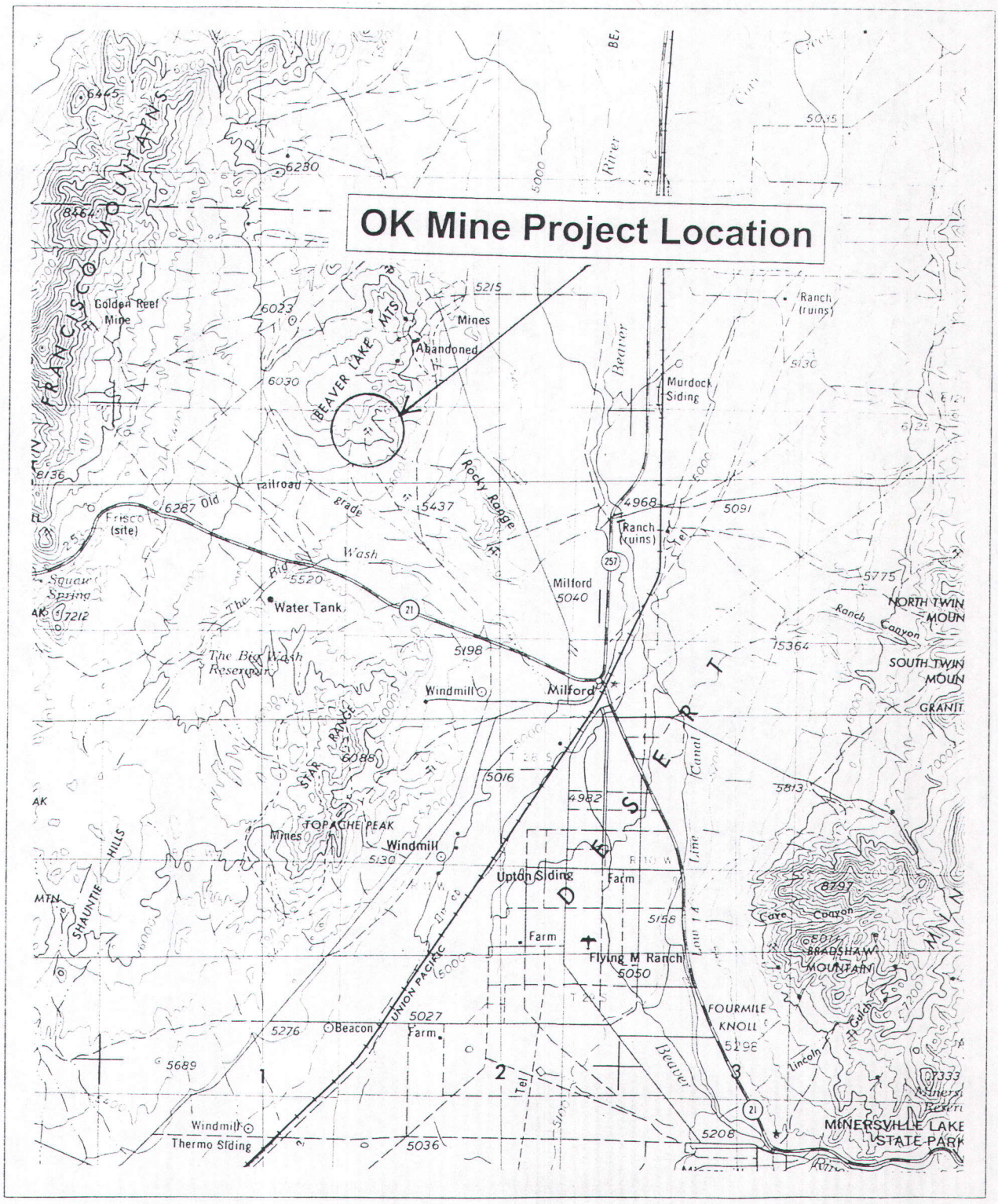
CENTURION MINES CORPORATION

331 SOUTH RIO GRANDE STREET, SUITE 201 P.O. BOX 2365 SALT LAKE CITY, UTAH 84110 801-534-1120
FAX: 801-534-1120

December 1996



OK Mine Project Location Map

Scale 1:125,000
(approximately 1 inch equals 2 miles)

N

Fig. 2

CENTURION MINES CORPORATION

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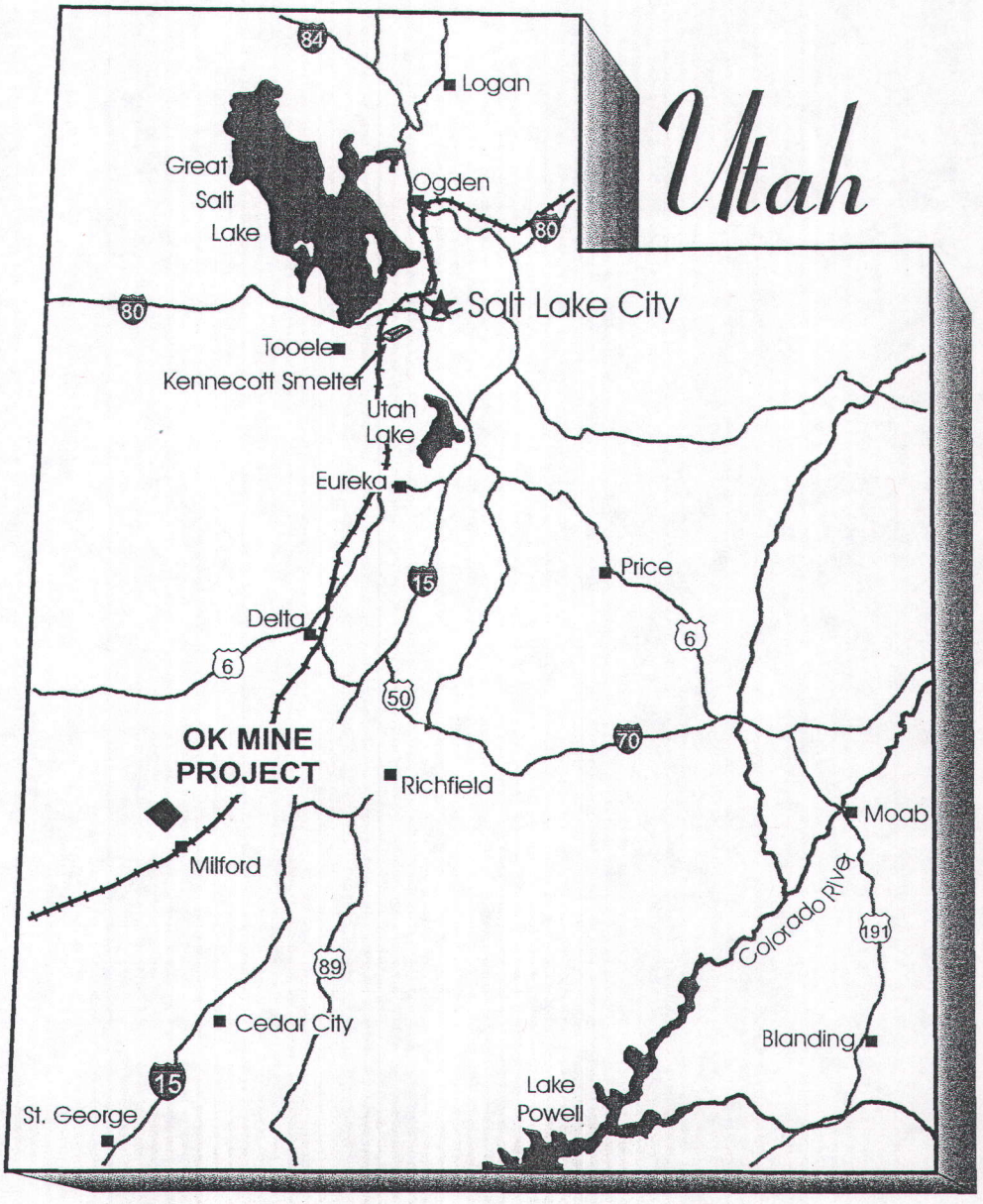

LARGE MINE PERMIT APPLICATION
OK MINE BEAVER COUNTY, UTAH
AUGUST 1996

RECLAMATION ESTIMATE
Centurion Mines Corporation
last revision 03/21/97
OK Mine - Phase 1 ONLY
filename M01-39.WB2 page "phase 1"
M/001/039 Beaver County
Prepared by Utah State Division of Oil, Gas & Mining

Details of Final Reclamation

-This estimate is a revised version of the Centurion estimate included in the Jan. 7, 1997 submission
-This estimate is for reclamation costs for Phase 1 disturbances only!
-20% of the total ore on the heap is assumed to require rinsing with water & lime at the time of final recl
-Heap slopes at working angle sof 2.5h:1v will be graded to 3h:1v, topsoiled & seeded
-Dump slopes at the angle of repose will be graded to 3h:1v, topsoiled & seeded
-Solutions in the ponds will be evaoprated & remaining sludges analyzed & disposed of appropriately
-All structures & facilities will be demolished & removed; asphalt & concrete debris buried onsite
-Improved pre-existing roads will be reclaimed to a 15 foot width
-Road reclamation will included regrading, ripping, topsoiling & seeding
-All disturbances except pit highwalls will receive one foot of topsoil
-Pit bottoms & their access roads will receive topsoil & be seeded
-Pit highwalls will be allowed to remain at angles steeper than 45 degrees; no topsoil or seeding
-Proposed total disturbance for Phases 1-3 of the OK Mine = 275.00 acres
-Estimated total disturbed area for Phase 1 - OK Mine = acres
*-Total disturbed area to be reclaimed = **128.00 acres***

Activity	Quantity	Units	$/unit	$	notes
Mobilization				636	(1)
Regrading				22,193	(1)
Removal of structures				42,950	(1)
Topsoil replacement				170,065	(1)
Contour scarification				9,256	(1)
Seed & planting				15,169	(1)
Revegetation monitoring (none in Phase 1)				0	(1)
Project supervision				13,368	(1)
subtotal				**273,637**	
Leach Pad - 53 Acres					
Rinse Heap - assumed rinsing 20% of total ore using the volume & rate shown below					
ASSUMPTIONS: 1.25lb lime per ton of ore; 120 gal water per ton ore; apply water at 1,000 gpm					
tons ore	gal h2o/tn	h20 gpm	#days	#months	
2,000,000	120	1000	166.7	5.6	
lime (1.25 lbs/ton)x($0.025/lb)x(10M ton)x(20%)	2,000,000	ton	0.031	62,500	(2)
generator rental	6	month	830	4,980	(3)
generator fuel, oil, maintenance	6	month	5,868	35,208	(4)
pump rental & maintenance	6	month	1,230	7,380	(5)
rinse supervisor	24	weeks	856	20,544	(2)
rinse laborers	2 6	month	2,588	31,056	(2)
miscellaneous supplies/piping/vehicles, etc.	6	month	1,000	6,000	(6)
subtotal for heap rinse & evaporation				**167,668**	
		Subtotal		441,305	
		10% Contingency		44,131	
		Subtotal		$485,436	
		Escalate for 5 years at 2.52% per yr		64,326	
		Total		$549,762	
		Rounded surety amount in yr 2002-$		**$550,000**	
Average cost per disturbed acre =	$4,297			**PHASE 1**	

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Average cost per disturbed acre =	$4,297	**PHASE 1**

OK Mine
M/001/039
notes

Beaver County

filename M01-39.WB2
last revision 03/21/97
page phase 1

(1)	taken from summary of reclamation cost page in Centurion estimate
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(2)	unit cost used in previous estimate M/037/088
(3)	Rental Rate Blue Book, 60KW, 107 hp, diesel generator, monthly rental
(4)	Rental Rate Blue Book, 60KW, 107 hp, diesel generator, monthly operating cost
(5)	Means Heavy Construction Cost Data 1997, 152-430-3180, 6"D x8"S, 60 hp pump
(2)	unit cost used in previous estimate M/037/088
(2)	unit cost used in previous estimate M/037/088
(6)	DOGM estimate